

AXIS 370 Cobra User's manual

IBM 3270 Protocol Converter

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Preface

Welcome to the AXIS 370 Cobra coax 3270 protocol converter. This manual will guide you through a step-by-step installation procedure. Once installed, the AXIS 370 Cobra works without operator intervention.

About Axis

Axis Communications is dedicated to provide inventive solutions for network connection of computer peripherals. Since the start in 1984, it has been one of the fastest growing companies in the market. The headquarters are located in Lund, Sweden, with subsidiaries in Boston, Tokyo, and Hong Kong.

Axis Communications has a distributor network operating in more than 50 countries world-wide, marketing three product lines:

- **IBM Mainframe and S/3x**

These products include a wide range of plug-in interfaces and stand-alone products such as the Cobra+ protocol converters and the AXIS AFP IPDS-to-PostScript converter.

- **Network Print Servers**

These intelligent Ethernet and Token Ring print servers support a wide range of LAN protocols. The AXIS 530, AXIS 560 and AXIS 570 are Ethernet print servers, and the AXIS 630, AXIS 660 and AXIS 670 are Token Ring print servers. The AXIS 150 is an Ethernet print server dedicated to PC networks.

- **CD-ROM Servers**

The latest addition to the Axis product range, these CD-ROM servers allow CD-ROM data to be shared over the network. The product range includes the AXIS 850 and AXIS 851 Ethernet CD-ROM servers as well as the AXIS 950 and AXIS 951 Token Ring CD-ROM servers.



About this manual

The manual applies to the AXIS 370 Cobra with software release 1.00 and to subsequent releases until otherwise notified.

Please refer to the AX-7 Cobra+ Technical Reference Manual for further information of functions and parameters.

The manual consists of five sections:

1. INTRODUCTION – The AXIS 370 Cobra and the concepts used in this manual.
2. INSTALLATION – Connecting your AXIS 370 Cobra to the printer and the IBM system.
3. CONFIGURATION – How to configure your AXIS 370 Cobra from a terminal.
4. ADVANCED FUNCTIONS – How to use your printer beyond standard IBM operation.
5. SOLVING PROBLEMS – Checklist for identifying and solving problems.

Every care has been taken in the preparation of this manual; if you detect any inaccuracies or omissions, please inform us at the address on the back cover.

Axis Communications AB cannot be held responsible for any technical or typographical errors and reserves the right to make changes in this manual and to the firmware without prior notice.

AXIS 370 Cobra User's Manual

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Part No: 14368

Dated: January, 1996

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Emission Notices

USA

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference. Shielded cables should be used with this unit to ensure compliance with the Class A limits.

Europe



This digital equipment fulfils the requirements for radiated emission according to limit B of EN55022/1987, and the requirements for immunity according to EN50082-1/1992 residential, commercial, and light industry. (Compliance is not valid for unshielded network and printer cables.)

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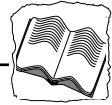
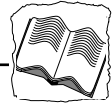


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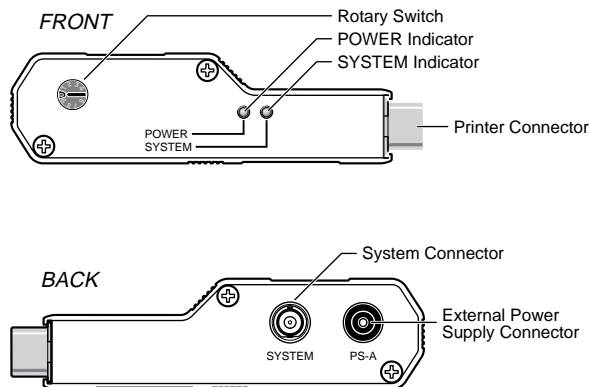


Section I Introduction

The AXIS 370 Cobra

The AXIS 370 Cobra is a protocol converter, which makes it possible to connect a PC type printer to an IBM mainframe environment.

The AXIS 370 Cobra has a coax connector for incoming system data and a parallel Centronics connector for outgoing ASCII data. Power is supplied via the printer's connector or from an optional external power supply.



AXIS 370 Cobra front and back panels.

Theory of Operation

Print data from an IBM host is in a format that cannot be recognized by PC type printers.

The AXIS 370 Cobra converts IBM control and character codes to ASCII control commands and characters, which are recognizable by the PC type printer.

Together, the AXIS 370 Cobra and the attached printer will appear to the IBM host as an original IBM coax printer.



ASCII Printer Driver

The AXIS 370 Cobra can utilize many of the functions resident in the attached printer, such as bolding, page formatting and paper source selections. The control commands for these functions reside in the Printer Drivers. These cover the standard ASCII emulations such as IBM Proprinter, Epson and HP LaserJet. See Appendix A for a list of available Printer Drivers.

IBM Printer Emulation

The following IBM printers can be emulated by the AXIS 370 Cobra and an attached PC type printer:

- IBM 3287 mod. 1 and 2C (*default*)
- IBM 3268 mod. 1 and 2
- IBM 4214 mod. 1
- IBM 3262
- IBM 4224 mod. 2 (non-IPDS mode)
- IBM 4230 mod. 201

See Appendix E for further technical specification.



Section 2 Installation

Unpacking

Unpack and check all the items using the following check list. Contact your dealer if anything is missing or damaged. All packing materials are recyclable.

The AXIS 370 Cobra Hardware Pack (part no: 0052-1) contains:



☐ AXIS 370 Cobra



☐ AXIS 370 Cobra User's Manual, part no: 14368

Optional:

AXIS External Power Supply PS-A:



☐ US, part no: 12919 **or**

☐ European, part no: 13599 **or**

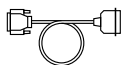
☐ UK, part no: 12866

☐ Japanese, part no: 13249

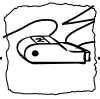


☐ Printer cable extension, part no: 13522

☐ Self-adhesive Velcro ribbons, part no: 13539 and 13540



☐ Flash loading cable, part no: 14510



Printer Attachment

First you establish contact between the AXIS 370 Cobra and the PC type printer. Prepare this by checking that the printer is ready to use.

You may also need an optional external power supply, if the printer is unable to supply the AXIS 370 Cobra.

1. **Switch off the printer.**
2. **Connect the AXIS 370 Cobra to the printer**, either directly to the parallel printer port, or using the optional printer cable extension and Velcro ribbons.
3. **Set the rotary switch to position '9'** (test printout function).
4. **Switch on the printer.**
5. **Connect the optional external power supply** (if needed).

The POWER indicator (green) is lit and the SYSTEM indicator (green) will flash for a few seconds.

If the POWER indicator is not lit, the printer is unable to supply power to the AXIS 370 Cobra. Connect an external power supply to the AXIS 370 Cobra.

The AXIS 370 Cobra will produce a test printout on the printer which shows the firmware revision and basic configuration. The default configuration is for a Generic Printer.

Example:

```
***** TEST PRINTOUT *****
AXIS 370 Cobra Ver 1.00 960103

Printer Driver #30 Generic Printer
#045 IBM Printer Emulation____ 87: IBM 3287
#005 System Language_____ 0: 037 English (US)
#063 ASCII Char. Set_____ 0: US English
#001 Form Length_____ 72
#002 Line Density_____ 6
#004 Char. Density_____ 10
```



The Generic Printer configuration will support limited printer operation. To get more out of your printer, it is advised to configure the AXIS 370 Cobra for your printer type. Please refer to section 3 before continuing with System Attachment.

The test printout will show if the AXIS 370 Cobra has been configured for your printer by the dealer/distributor.

Example:

The printout shows that this AXIS 370 Cobra has already been configured for an HP LaserJet III printer:

```
***** TEST PRINTOUT *****
AXIS 370 Cobra Ver 1.00 960103

Printer Driver #49 HP Laserjet III
#045 IBM Printer Emulation____ 87: IBM 3287
#005 System Language_____ 0: 037 English (US)
#063 ASCII Char. Set_____ 13: PC 850
#001 Form Length_____ 66
#002 Line Density_____ 6
#004 Char. Density_____ 10
```



System Attachment

When your AXIS 370 Cobra is configured, and the configuration is verified by a test printout, it is time to connect it to the IBM system.

1. **Switch off the AXIS 370 Cobra** by switching off the printer, or, if an external power supply is used, by unplugging the power cord.
2. **Set the rotary switch to position '0'** (normal print operation).
3. **Connect an IBM coax cable** leading from the control unit to the AXIS 370 Cobra.
4. **Switch on the AXIS 370 Cobra** (switch on the printer or plug in the external power supply)

The POWER indicator is lit. The SYSTEM indicator flashes for a few seconds and is then constantly lit.

To verify the attachment, make a local screen copy printout. Use a terminal attached to the IBM system and send a screen copy print to the port to which the AXIS 370 Cobra is connected.

You have now completed the installation procedure, and your AXIS 370 Cobra is ready for use. It will not need any attendance or service during normal operation.



Section 3 Configuration

To get the most out of your printer, we recommend that you configure your AXIS 370 Cobra for your printer type. Only limited printer operation is supported by the default configuration.

Your AXIS 370 Cobra might already have been configured for you. A test printout will verify the current configuration, see Section 2.

The configuration can be done in two ways:

- **Configuration from a Terminal**

This is the method described in this section. The configuration method requires a dedicated IBM 3270 terminal such as a 3178, 3179, 3192 or 3472.

Alternatively, a PC equipped with a 3270 terminal emulation board or an Axis EMMA board (part no 0041-1) can be used.

- **Configuration from the System**

The AXIS 370 Cobra can also be configured using down-loaded programming sequences from the system, see Section 4.



Configuration from a Terminal

The AXIS 370 Cobra is equipped with a menu-driven Configuration Utility. This provides a step-by-step method to adapt the AXIS 370 Cobra to your IBM coax host and printer. Follow these steps to start the configuration:

1. **Switch off the AXIS 370 Cobra.** If the power is taken from an attached printer, then switch the printer off. If you are using an external power supply, unplug the power cord.
2. **Connect a terminal to the AXIS 370 Cobra via a coax cable, and switch the terminal on.** If your terminal is of the DFT type it is necessary to set it to Control Unit Customization mode so that it operates as a CUT terminal.
3. **Set the rotary switch in position '0' and switch the AXIS 370 Cobra on.** The System indicator should now flash rapidly.

Within a few seconds, the Key Definitions Menu should appear on your terminal.

The rest of Section 3 is a guide to the Configuration Utility. If you want to restart the configuration, switch the AXIS 370 Cobra off and on.



Key Definitions

```
=====
      AXIS 370 Cobra                Ver 1.00                960103
=====

KEY DEFINITIONS

_Right
Left
Up
Down
Enter

Assign cursor keys                (c) AXIS COMMUNICATIONS AB 1996
```

The first menu is for assigning the specific keys to be used in the configuration. No other keys than the five assigned can be used.

Press the key you wish to assign when the corresponding value is highlighted.

The highlight will move to the next value after the key has been assigned.



Right, *Left*, *Up* and *Down* are normally assigned to the cursor keys, and *Enter* to the 'Enter' or 'Return' key.

When you have assigned the five keys, the Main Menu will be shown.



Basic Configuration

```
=====
      AXIS 370 Cobra                      Ver 1.00                      960103
=====

MAIN MENU

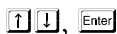
Basic Configuration
View Configuration
Print Parameter List
Edit Parameters
Character Translation
User Definable Strings
String Substitutions
Set Factory Defaults
Save
Exit

Use <Up><Down> to move, <Enter> to select
```

All entries are described in Section 4

The 'Basic Configuration' entry initiates a configuration procedure which will guide you through a sequence of submenus. You will be prompted for selections in the following order:

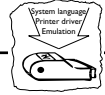
1. Printer Driver
2. IBM Printer Emulation
3. System Language
4. Form Length
5. Lines per Inch
6. Characters per Inch



Select 'Basic Configuration'

The Printer Driver submenu is shown.

Note: ☐ If you make an error during the Basic Configuration, press *Enter* until the Main Menu appears, and enter the Basic Configuration.



Select Printer Driver

This submenu is shown after you have selected 'Basic Configuration' in the Main Menu.

```
=====
                        BASIC CONFIGURATION
=====

    PRINTER DRIVER

    Generic Printer
    IBM Graphics
    IBM Proprinter
    Epson FX/EX/DFX
    Epson LQ
    Fujitsu DL (DPL24C)
    IBM Matrix (PPDS)
    HP LaserJet II
    HP LaserJet III
    HP LaserJet 4
    XEROX 4045

    Use <Up><Down> to move, <Enter> to select
```

A printer driver is a device driver containing all the variables, including command sequences and character sets, required to drive a particular range of printers.

The default printer driver is Generic Printer

If your printer is not listed, consult your printer manual. Most printers can emulate at least one of the common printers like Epson FX/LQ, IBM Proprinter or HP LaserJet.



Select the Printer Driver matching your printer.



Section 3: Configuration

Select IBM Printer Emulation

This submenu is shown after you have selected Printer Driver.

```
=====
                        BASIC CONFIGURATION
=====

    IBM PRINTER EMULATION

    _IBM 3287
    IBM 3268
    IBM 4214
    IBM 3262
    IBM 4224
    IBM 4230

    Use <Up><Down> to move, <Enter> to select
```

The AXIS 370 Cobra together with the PC type printer will appear to the IBM system as an original IBM coax printer. You have to select which IBM printer emulation that should be used.

The default printer emulation is IBM 3287.

If you are planning to use CECP (Country Extended Code Page) in LU1 mode, you have to select the IBM 4224 emulation.



Select the IBM Printer Emulation matching your system configuration.



Select System Language

This submenu is shown after you have selected IBM Printer Emulation.

```
=====
                        BASIC CONFIGURATION
=====

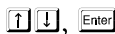
SYSTEM LANGUAGE

_037 English (US)          288 Swedish/Finnish alt --- XBASIC (Arabic)
037 Netherlands          289 Spanish alt      --- XCOM2 (Arabic)
037 Portuguese           290 Japanese Katakana --- Load Translate Table
037 Canadian Bilingual   297 French
260 Canadian French      297 French AZERTY
273 Austrian/German      420 Arabic
275 Brazilian            423 Greek
277 Danish/Norwegian     424 Hebrew
278 Swedish/Finnish      500 International Set 5
280 Italian              500 New Swiss French
281 Japanese English     500 Belgian
284 Spanish              838 Thai
284 Spanish Speaking     870 East Europe
285 English (UK)         875 Greek
286 Austrian/German alt  880 Cyrillic
287 Danish/Norwegian alt 1026 Turkey (Latin 5)

Use <Up><Down> to move, <Enter> to select
```

You have to set up the AXIS 370 Cobra for the System Language matching your IBM system configuration in order to obtain correct language specific characters.

The default System Language is English (US).



Select the System Language corresponding to your IBM system configuration.

Note: ☐ If you select 'Load Translate Table', your IBM Control Unit will down-load the System Language when the AXIS 370 Cobra is switched on.



Section 3: Configuration

Select Form Length

This submenu is shown after you have selected System Language.

```
=====
                        BASIC CONFIGURATION
=====

FORM LENGTH

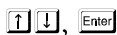
072

Use cursor keys to edit, <Enter> to select
```

This is the number of lines per page.

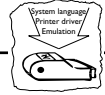
The default Form Length is 72 lines for matrix Printer Drivers and 66 lines for laser Printer Drivers.

Selecting 0 lines will inhibit the Form Length setting, *i.e.* the printer itself keeps track of the page breaks.



Select the value corresponding to the physical paper size.

Note: ☐ The Form Length selection may be overridden by the host in SCS mode.



Select Lines per Inch (LPI)

This submenu is shown after you have selected Form Length.

```

=====
                        BASIC CONFIGURATION
=====

    LINES PER INCH

    3
    4
    6
    8
    Off

    Use <Up><Down> to move, <Enter> to select
  
```

This is the line spacing of the printout.

The default is 6 Lines per Inch.

‘Off’ means that no LPI commands are sent to the printer. Use this selection if you set LPI using the printer’s front panel only.



Select a Lines per Inch value.

Note: ☐ The Lines per Inch selection may be overridden by the host in SCS mode.



Section 3: Configuration

Select Characters per Inch (CPI)

This submenu is shown after you have selected LPI.

```
=====
                        BASIC CONFIGURATION
=====

CHARACTERS PER INCH

  5
  10
 12
 15
 17
Proportional
Off

Use <Up><Down> to move, <Enter> to select
```

This is the character spacing of the printout. The default is 10 Characters per Inch.

The value 'Proportional' is used to select proportionally spaced characters.

'Off' means that no CPI commands are sent to the printer. Use this selection if you set CPI using the printer's front panel only.

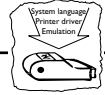


Select a Characters per Inch value.

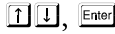
Note: ☐ The Characters per Inch selection may be overridden by the host in SCS mode.

End of configuration.

The Basic Configuration is now completed, and the Main Menu is displayed again.



Save the Configuration



Select 'Save' in the Main Menu.

The following submenu is shown:

```

=====
                                SAVE
=====

SAVE SETTINGS PERMANENTLY

_Yes
No

Use <Up><Down> to move, <Enter> to select
  
```



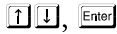
Select 'Yes' to save the current configuration permanently.

The system indicator stops flashing while save is in progress. The Main Menu is displayed after a few seconds.

- Note:** ☐ The previous configuration remains in the permanent memory until you select 'Save'. If you exit without saving, the changes you have made to the configuration will be lost at the next power-off.



Exit the Configuration



Select 'Exit' in the Main Menu.

The following submenu is shown:

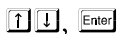
```
=====
                                SAVE
=====
```

EXIT CONFIGURATION

Yes

No

Use <Up><Down> to move, <Enter> to select

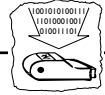


Select 'Yes' to exit the configuration.

The Configuration Utility is terminated and the screen is left blank. Disconnect the terminal and connect the AXIS 370 Cobra to your IBM system.

If you select 'No' in this submenu the Main Menu will be displayed again.

Note: ☐ If you exit without saving, the changes you have made to the configuration will be lost at the next power-off.



Section 4 Advanced Functions

The AXIS 370 Cobra supports a number of functions beyond standard IBM printer operation.

During normal mode of operation, AXIS 370 Cobra, together with your printer, emulates the IBM coax printer selected in your configuration. In addition, the Extended Emulation Mode gives you access to functions not available in standard IBM printers.

The examples in this section are intended to give you an overview of how to use the advanced functions in the Extended Emulation Mode.

Extended Emulation Mode

The advanced functions that you can access in the Extended Emulation Mode are:

- Transparency
- Configuration from the System
- Character Translation
- User Definable Strings
- String Substitutions
- Bar Code Printing

The functions are programmed, and called, by text sequences inserted into your documents. The sequences are inserted between enter and exit commands that control the Extended Emulation Mode (see page 29).



Main Menu

A number of the advanced functions can be programmed or edited using Configuration from a Terminal. The Main Menu is displayed when the configuration is started (See “Configuration from a Terminal” on page 16).

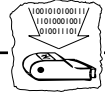
```
=====
  AXIS 370 Cobra                      Ver 1.00                      960103
=====

MAIN MENU

Basic Configuration
View Configuration
Print Parameter List
Edit Parameters
Character Translation
User Definable Strings
String Substitutions
Set Factory Defaults
Save
Exit

Use <Up><Down> to move, <Enter> to select
```

Basic Configuration	—see Section 3.
View Configuration	—display the basic configuration.
Print Parameter List	—print the parameter list (Appendix A).
Edit Parameters	—tailor the settings to meet specific needs.
Character Translation	—view and edit tables (see page 32)
User Definable Strings	—define and edit strings (see page 38)
String Substitutions	—search and replace strings (see page 41).
Set Factory Defaults	—reset the configuration to defaults.
Save	—store current configuration permanently.
Exit	—exit configuration.



Configuration from the System

This function allows you to configure the AXIS 370 Cobra without using the Configuration from a Terminal as described in Section 3

By inserting configuration commands in your document, the AXIS 370 Cobra can be tailored to meet special requirements for your print jobs.

Document example:

<code>&&??%P</code>	<i>(Enter extended emulation mode)</i>
<code>%P</code>	<i>(Configuration lead-in sequence)</i>
<code>=207,49</code>	<i>(Printer Driver = HP LaserJet III)</i>
<code>=1,66</code>	<i>(Form Length = 66 lines)</i>
<code>=4,12</code>	<i>(Character Density = 12 CPI)</i>
<code>=45,24</code>	<i>(IBM printer type = IBM 4224)</i>
<code>=207,10</code>	<i>(Initialize settings)</i>
<code>=207,12</code>	<i>(Save settings permanently)</i>
<code>%</code>	<i>(Configuration trailer sequence)</i>
<code>&&??000</code>	<i>(Resume normal emulation mode)</i>

The example shows how to select a Printer Driver and program the Basic Configuration parameters.

The first line is to enter the Extended Emulation Mode.

‘%P’ tells the AXIS 370 Cobra that configuration commands are to follow. ‘=’ indicates a command line. Each command line has a function or parameter number.

‘207’ is a function number, followed by a comma and a value. Please refer to the Technical Reference for a description of functions.

‘1’ is a parameter number, followed by a comma and a value. ‘4’ and ‘45’ are also parameters. The parameters are listed in Appendix A.

‘%’ indicates the end of the configuration commands.

The last line is to exit the Extended Emulation Mode.

Note: ☐ The comments (within brackets) should not be included in your document.



Transparency

The Transparency function allows you to send data directly to your printer without any conversion (pass-through). The data could be ASCII printer commands unsupported by the interface (*e.g.* underlined text), or even down-loaded fonts.

There are two types of Transparency, Single-byte and Multi-byte. The function is accessed in Extended Emulation Mode.

The Single-byte Transparency function is called by a percent sign in your document (%) and it will pass through one subsequent ASCII byte (hexadecimal).

The Multi-byte function is started by two successive percent signs. When the start sequence (‘%%’) is found, the AXIS 370 Cobra assumes hexadecimal data until a terminating percent sign occurs.

Document Example (Multi-byte Transparency):

You want the text to have an underlined part in the middle. Assuming that you have an IBM Proprinter, ‘start underline’ and ‘stop underline’ are defined by the ASCII codes \$1B,\$2D,\$31 and \$1B,\$2D,\$30 respectively:

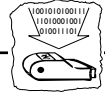
```
This is %%1B2D31%underlined%%1B2D30% text
```

Printout:

```
This is underlined text
```

Please refer to the manual for your PC type printer for information on ASCII printer commands.

Note: ☐ To access the Transparency function, Extended Emulation Mode must be entered.



Redefine Configuration and Transparency Sequences

The Start and Stop Transparency and Configuration are controlled by three string parameters:

- *Transparency Lead-In Sequence* (#070), default ‘%%’.
- *Configuration Lead-In Sequence* (#071), default ‘%P’.
- *Transparency/Configuration Trailer Sequence* (#072), default ‘%’.

See Appendix A for a description of the parameters. The parameters can be redefined using Configuration from the System.

Document Example:

Change the Transparency Lead-In Sequence from ‘%%’ to ‘!<’ (DBC codes \$19,\$18,\$09). Also, change the Trailer Sequence from ‘%’ to ‘>&’ (DBC codes \$08,\$30):

%P	(Configuration lead-in sequence)
=70,\$19,\$18,\$09	(Change the transparency lead-in sequence to ‘!<’)
=72,\$08,\$30	(Change the configuration trailer sequence to ‘>&’)
=207,10	(Initialize settings)
=207,12	(Save settings permanently)
>&	(Configuration trailer sequence (new))

- Notes:**
- ❑ To redefine the sequences, Extended Emulation Mode must be entered. The sequences are reset to their default values if you exit and re-enter Extended Emulation Mode.
 - ❑ The sequences are redefined immediately. Therefore, the new sequence ‘>&’ must be used as Configuration Trailer Sequence in the document.

Document Example:

Use the new sequences in the same example as in the previous section (Multi-byte Transparency):

This is !?<1B2D31>&underlined!?!<1B2D30>& text

This results in the same printout as in the previous section.

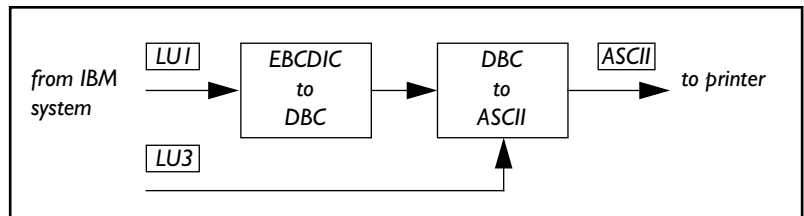


Edit Translation Tables

Normally, there is no need to edit the translation tables. The character translation tables activated by the Printer Driver and System Language selections are designed to produce the same printouts as the emulated IBM printer.

If you should need to make further adjustments, this section explains the character translation process and how to modify the translation tables to meet specific needs.

Character Translation

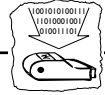


LU1 (*i.e.* *SCS*) data stream EBCDIC characters are first translated into DBC codes (Device Buffer Code). This is the internal character representation in the AXIS 370 Cobra. The DBC codes are then translated into ASCII codes, which are sent to the printer.

LU3 (*i.e.* *DSE/DSC/non-SCS*) data stream DBC characters are directly translated into printable ASCII codes.

The EBCDIC-to-DBC translation table is determined by the selected System Language.

The DBC-to-ASCII table is determined by the selected Printer Driver.



Editing Translation Tables using a Terminal

Start the Configuration from a Terminal as described in Section 3.



Select the Character Translation entry in the Main Menu.

The Character Translation menu is displayed:

```
=====
                        CHARACTER TRANSLATION
=====

CHARACTER TRANSLATION FUNCTIONS

_View/Edit DBC to ASCII table
View/Edit EBCDIC to DBC table
Print DBC to ASCII table
Print DBC to ASCII table (hex)
Print EBCDIC to ASCII table
Print EBCDIC to ASCII table (hex)
Print EBCDIC to DBC table (hex)
Return to Main Menu

Use <Up><Down> to move, <Enter> to select
```



Select 'View/Edit DBC to ASCII table'.

The translation table is displayed (see next page):



VIEW/EDIT DBC TO ASCII TABLE

ASCII Char. Set: PC-850

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
_0	\$20	\$20	\$30	\$26	\$85	\$84	\$B7	\$8E	\$61	\$71	\$41	\$51	\$20	\$D0	\$20	\$D1
1	\$20	\$3D	\$31	\$2D	\$8A	\$89	\$D4	\$D3	\$62	\$72	\$42	\$52	\$20	\$E7	\$20	\$E8
2	\$20	\$27	\$32	\$2E	\$8D	\$8B	\$DE	\$D8	\$63	\$73	\$43	\$53	\$20	\$EC	\$20	\$ED
3	\$20	\$22	\$33	\$2C	\$95	\$94	\$E3	\$99	\$64	\$74	\$44	\$54	\$20	\$20	\$20	\$20
4	\$20	\$2F	\$34	\$3A	\$97	\$81	\$EB	\$9A	\$65	\$75	\$45	\$55	\$20	\$20	\$20	\$20
5	\$20	\$5C	\$35	\$2B	\$C6	\$83	\$C7	\$B6	\$66	\$76	\$46	\$56	\$FB	\$F1	\$20	\$20
6	\$20	\$7C	\$36	\$AA	\$E4	\$88	\$E5	\$D2	\$67	\$77	\$47	\$57	\$FD	\$F6	\$20	\$20
7	\$20	\$DD	\$37	\$EE	\$98	\$8C	\$59	\$D7	\$68	\$78	\$48	\$58	\$FC	\$9E	\$20	\$20
8	\$3E	\$3F	\$38	\$F8	\$85	\$93	\$41	\$E2	\$69	\$79	\$49	\$59	\$AB	\$FA	\$20	\$20
9	\$3C	\$21	\$39	***	\$8A	\$96	\$45	\$EA	\$6A	\$7A	\$4A	\$5A	\$AC	\$AE	\$20	\$20
A	\$5B	\$24	\$E1	\$5E	\$82	\$A0	\$45	\$B5	\$6B	\$91	\$4B	\$92	\$F3	\$AF	\$20	\$20
B	\$5D	\$BD	\$F5	\$7E	\$8D	\$82	\$49	\$90	\$6C	\$9B	\$4C	\$9D	\$A7	\$A8	\$20	\$20
C	\$29	\$9C	\$23	\$F9	\$95	\$A1	\$4F	\$D6	\$6D	\$86	\$4D	\$8F	\$A6	\$AD	\$20	\$20
D	\$28	\$BE	\$40	\$60	\$97	\$A2	\$55	\$E0	\$6E	\$87	\$4E	\$80	\$F4	\$E6	\$20	\$20
E	\$7D	\$23	\$25	\$EF	\$81	\$A3	\$59	\$E9	\$6F	***	\$4F	\$3B	\$B8	\$20	\$20	\$20
F	\$7B	\$CF	\$5F	\$F7	\$87	\$A4	\$43	\$A5	\$70	***	\$50	\$2A	\$A9	\$20	\$20	\$20

Use <Right> to enter View/Edit mode, <Enter> to exit

The translation table shows the ASCII codes for each DBC code. Appendix B shows a printout of the characters for each DBC code.

Read each DBC code as a column and row position where you find the ASCII translation. For example, DBC \$2A translates to ASCII \$E1.

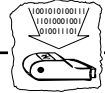
This is the table for the PC-850 character set used by the HP LaserJet III printer driver. Changing the printer driver selection will also change the table.

Three asterisks (***) in the table indicate that the DBC code is translated into a string of ASCII codes, rather than a single code. The string is not displayed in the table but is available for editing.



To View/Edit:

Press *Right*. The highlight moves to the ASCII value for DBC \$00. Use the cursor keys to move and press *Enter* to enter edit mode.

**Example 1:**

To change a left bracket '[' at position 0A to a left bracket '{' which has ASCII value \$7B.

1. **Move the highlight to position 0A in the table.**
2. **Press *Enter* to edit.**

The row above the help message contains the edit field. This field shows the current DBC position and the corresponding ASCII value. The bottom of the screen looks like this:

```
E  $7D $23 $25 $EF $81 $A3 $59 $E9 $6F *** $4F $3B $B8 $20 $20 $20
F  $7B $CF $5F $F7 $87 $A4 $43 $A5 $70 *** $50 $2A $A9 $20 $20 $20
```

\$0A:\$5B

Use <Right> to enter View/Edit mode, <Enter> to exit

Now replace the value \$5B with the new value \$7B:

3. **Change \$5B to \$7B using the *Up/Down* keys.**
4. **Press *Enter* to resume view mode.**

The position 0A in the table is now highlighted, and has the new value \$7B.

5. **Press *Left* to move the cursor to the home position (under the upper left digit '0').**
6. **Press *Enter* to exit and return to the Character Translation Menu.**

From now on, a left bracket '[' is replaced by '{' in printouts.



Example 2:

Change the overscored semicolon ‘;’ at position 9E to a ‘bullet’ character ‘•’ which has ASCII value \$FA:

1. **Move the highlight to position 9E in the table.** The three asterisks indicate that this DBC character translates to a string rather than a single character.
2. **Press *Enter*.** The bottom of your screen now looks like this:

```
E  $7D $23 $25 $EF $81 $A3 $59 $E9 $6F *** $4F $3B $B8 $20 $20 $20
F  $7B $CF $5F $F7 $87 $A4 $43 $A5 $70 *** $50 $2A $A9 $20 $20 $20
```

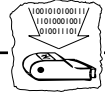
\$9F:\$EE,\$08,\$3B

Use <Right> to enter View/Edit mode, <Enter> to exit

Replace the string \$EE,\$08,\$3B (overscore, backspace, semicolon) with the value \$FA (the bullet character):

3. **Change \$EE to \$FA.**
 4. **Step *Right*, and change \$08,\$3B to \$00,\$00.**
 5. **Place the cursor under the first \$00** to delete this and all subsequent zero values.
 6. **Press *Enter*** to resume view mode.
- The position 9E in the table is now highlighted, and the three asterisks are replaced with \$FA.
7. **Exit edit mode.**

Note: ☐ Changing printer driver will override all changes to the table.



Editing Translation Tables using the System

The translation table can be modified from the system.

Document Example (see also previous examples):

Change the overscored semicolon ‘ $\overline{;}$ ’ at position 9E to a ‘bullet’ character ‘•’ by inserting the following programming sequences in your document:

%P	<i>(Configuration lead-in sequence)</i>
=205,\$9E,\$FA	<i>(Translate DBC \$9E to ASCII \$FA)</i>
=207,10	<i>(Initialize settings)</i>
=207,12	<i>(Save settings permanently)</i>
%	<i>(Configuration trailer sequence)</i>

Note: ☐ To edit, Extended Emulation Mode must be entered.

‘205’ is the function number, ‘\$9E’ is the DBC table position and ‘\$FA’ is the new ASCII value (old ASCII value/ values are deleted).

You can modify any number of DBC positions by adding lines with function 205 calls.

The EBCDIC to DBC table is editable in a similar fashion, the only difference being that an EBCDIC character translates to a single DBC character only. The function number for EBCDIC table editing is 204.



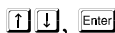
User Definable Strings

The User Definable Strings is a set of 255 strings at your disposal.

A common application is to program and store various printer control commands, and send them to the printer using string references rather than the commands themselves. Please refer to the manual for your PC type printer for information on ASCII printer commands.

Programming Strings from a Terminal

Start the Configuration from Terminal as described in Section 3.



Select the User Definable Strings entry in the Main Menu.

The User Definable Strings Menu is displayed:

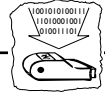
```
=====
                        USER DEFINABLE STRINGS
=====
                                                    Free String Area: $1C41

View/Edit User Definable Strings

_$01 User Def. String____ .
$02 User Def. String____ .
$03 User Def. String____ .
$04 User Def. String____ .
$05 User Def. String____ .
$06 User Def. String____ .
$07 User Def. String____ .
$08 User Def. String____ .
$09 User Def. String____ .
$0A User Def. String____ .
$0B User Def. String____ .
$0C User Def. String____ .
$0D User Def. String____ .
$0E User Def. String____ .
$0F User Def. String____ .
$10 User Def. String____ .

Use cursor keys to edit, <Enter> to exit
```

The numbers in the leftmost column are the string numbers, ranging from \$01 to \$FF.

**Example (IBM Proprietary):**

You want to store commands for underlining text. If you have an IBM Proprietary, 'start underline' and 'stop underline' are defined by the ASCII codes \$1B,\$2D,\$31 and \$1B,\$2D,\$30 respectively.

1. **When string number \$01 is highlighted, press *Right*** to enter edit mode. The string is set to \$00.
2. **Edit the string to \$1B,\$2D,\$31** using the cursor keys (press *Right* to expand the string).
3. **Press *Enter*.**
4. **Edit string number \$02 to \$1B,\$2D,\$30**

Your screen now looks like this:

```
=====
                        USER DEFINABLE STRINGS
=====
                                                    Free String Area: $1C3B

View/Edit User Definable Strings

$01 User Def. String____ $1B,$2D,$31.
_$02 User Def. String____ $1B,$2D,$30.
$03 User Def. String____ .
$04 User Def. String____ .
$05 User Def. String____ .
$06 User Def. String____ .
$07 User Def. String____ .
$08 User Def. String____ .
$09 User Def. String____ .
$0A User Def. String____ .
$0B User Def. String____ .
$0C User Def. String____ .
$0D User Def. String____ .
$0E User Def. String____ .
$0F User Def. String____ .
$10 User Def. String____ .

Use cursor keys to edit, <Enter> to exit
```



Press *Enter* until the Main Menu is displayed.

The maximum String length is determined by the Free String Area.

Note: ☐ Changing printer driver will override all User Definable Strings.



Programming Strings from the System

Document Example (See also previous section):

Assume that you have an IBM Proprinter:

%P	(Configuration lead-in sequence)
=209,\$00	(Delete all)
=209,\$01,\$1B,\$2D,\$31	(Program string 01 to 'start underline')
=209,\$02,\$1B,\$2D,\$30	(Program string 02 to 'stop underline')
=207,10	(Initialize settings)
=207,12	(Save settings permanently)
%	(Configuration trailer sequence)

Note: ☐ Strings are programmed in Extended Emulation Mode.

'209' is the function number, '\$01' is the string number. If the string number is not followed by a value, the string is deleted.

'209,\$00' will delete all previously programmed User Definable Strings.

Using the Strings

Document Example (IBM Proprinter):

To underline text in a document using the strings number \$01 and \$02 (see previous example):

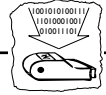
```
This is %01underlined%02 text
```

Printout:

```
This is underlined text
```

As you can see, the function syntax is equal to the Single-byte Transparency function. However, the User Definable Strings will override the Transparency function. If a value is used as a string number it cannot be passed through by the Single-byte Transparency function.

Note: ☐ To use the Strings, Extended Emulation Mode must be entered.



String Substitutions

This function is useful when you want to print a document that is prepared for a different PC type printer than yours.

The document contains control commands for a specific printer, and you have to convert these commands in order to print this document with your printer. Instead of changing the document, you can let the AXIS 370 Cobra do the conversion for you by using String Substitution.

The String Substitution function will search the data stream for a specified sequence of ASCII characters and substitute them with another sequence. Note that this function operates after the character and control code conversion.

Example:

Assume that you have an HP LaserJet. The document is prepared for an IBM Proprinter and contains 'start underline' and 'stop underline' pass-through commands at several locations. To print the document with an HP LaserJet, the sequences must be converted.

To 'start underline', the IBM Proprinter uses ASCII value string \$1B, \$2D, \$31 and the HP LaserJet uses \$1B, \$26, \$64, \$44.

'Stop underline' commands are \$1B, \$2D, \$30 and \$1B, \$26, \$64, \$40 respectively.

The following pages show how to program these substitutions, both from a Terminal and the System.



Programming String Substitutions from a Terminal

Start the Configuration from Terminal as described in Section 3.

1. **Select the String Substitutions entry in the Main Menu.** The String Substitutions Menu consists of pairs of Match and Substitute strings.
2. **Edit the first two string pairs.** See “User Definable Strings” on page 38 on how to edit strings.

The String Substitutions Menu now looks like this:

```
=====
                        STRING SUBSTITUTIONS
=====
Free String Area: $1C33

View/Edit ASCII String Substitutions

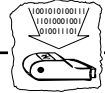
$01 Match String 1_____ $1B,$2D,$31.
$02 Subst. String 1_____ $1B,$26,$64,$44.
$03 Match String 2_____ $1B,$2D,$30.
_$04 Subst. String 2_____ $1B,$26,$64,$40.
$05 Match String 3_____ .
$06 Subst. String 3_____ .
$07 Match String 4_____ .
$08 Subst. String 4_____ .
$09 Match String 5_____ .
$0A Subst. String 5_____ .
$0B Match String 6_____ .
$0C Subst. String 6_____ .
$0D Match String 7_____ .
$0E Subst. String 7_____ .
$0F Match String 8_____ .
$10 Subst. String 8_____ .

Use cursor keys to edit, <Enter> to exit
```

When a Match String is encountered in the ASCII data stream, it will be replaced by the subsequent Substitute String.

The maximum Match String length is 50 bytes. The maximum Substitute String length is determined by the Free String Area.

- Notes:**
- ☐ Extensive use of Substitutions may slow down the printing speed.
 - ☐ Changing Printer Driver will delete all String Substitutions.



Programming String Substitutions from the System

The same programming example as above can also be obtained by inserting the following lines into your document:

%P	<i>(Configuration lead-in sequence)</i>
=210,\$00	<i>(Delete all)</i>
=210,\$01,\$1B,\$2D,\$31	<i>(Start underline - Proprinter)</i>
=210,\$02,\$1B,\$26,\$64,\$44	<i>(Start underline - HP LaserJet)</i>
=210,\$03,\$1B,\$2D,\$30	<i>(Stop underline - Proprinter)</i>
=210,\$04,\$1B,\$26,\$64,\$40	<i>(Stop underline -HP LaserJet)</i>
=207,10	<i>(Initialize settings)</i>
=207,12	<i>(Save settings permanently)</i>
%	<i>(Configuration trailer sequence)</i>

Note: ☐ String Substitutions are programmed in Extended Emulation Mode.

‘210’ is the function number. If the string number is not followed by data, the string will be deleted.

‘210,\$00’ will delete all String Substitutions.



Bar Codes

This function gives you easy access to a range of standard bar code types. You can design every single bar code printout to meet your specific requirements, such as width and height.

There are two functions and two parameters that are used for printing bar codes:

- Function '211' defines the bar code.
- Function '212' prints the bar code.
- *Bar Code Driver (#093).*
- *Bar Code Attributes (#094).*

The definition has to be done before a bar code can be printed.

See Appendix A for a description of parameters.

Define Bar Codes

The function '211', which is to be inserted into a document, has the following syntax:

211,value 1,value 2,value 3,value 4,value 5

The function number is followed by five bar code specification values. All five values must be specified:

value 1: Bar Code Type. Selectable values (in decimal):

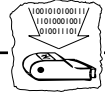
- 1 = Code 39
- 3 = UPC-A
- 8 = EAN8
- 9 = EAN13
- 12 = 2 of 5 Interleaved
- 13 = Codabar Matrix
- 17 = Code 128

value 2: Module Width as a multiple of 1/120 inch.

The value may range from 1 to 32 (in decimal).

value 3: Bar Code Height in number of lines (1/6 inch).

The value may range from 1 to 32 (in decimal).



value 4: Human Readable Text. Selectable values:

- 0 = No textline below the bar code
- 1 = Human readable textline below the bar code.
- 2 = Human readable textline below the bar code with empty line in between.

value 5: Horizontal Bar Code Start Position in 1/12 inch steps.
The value may range from 1 to 255 (in decimal).

Note: ☐ When you set the horizontal width and start position, make sure that the printout will fit on the paper area.

Print Bar Code

The function '212' prints a bar code according to the settings in the bar code definition. The syntax is as follows:

212,"bar code data"

Document Example:

%P	(Configuration lead-in sequence)
=211,9,2,2,1,10	(Define Bar Code)
=212,"123456789012"	(Print Bar Code)
%	(Configuration trailer sequence)

Printout



Note: ☐ To Define and Print bar code, Extended Emulation Mode must be entered.



Automatic Page Orientation

Note: ☐ This section applies to Laser Printer drivers only.

The automatic page orientation function calculates page sizes based on the following page formatting parameters:

- *Form Length* (#001)
- *Line Density* (#002)
- *Maximum Print Position* (#003)
- *Character Density* (#004)
- *Automatic Orientation/Physical Paper Size* (#074)

Portrait or landscape orientation is automatically selected depending on the calculated length/width ratio. If the calculated page size is larger than the physical page in either orientation, and *Orientation* (#148) is set to Computer Output Reduction (COR), COR mode is used.

The COR function is designed to accommodate traditional data processing applications that require 66 lines of 132 columns on laser printers. The following changes are made:

- The page is printed in landscape orientation.
- The line spacing is set to 70% of that specified.
- The character density is changed as follows:
 - 10 CPI \Rightarrow 13.3 CPI
 - 12 CPI \Rightarrow 15 CPI
 - 15 CPI \Rightarrow 20 CPI
 - 17 CPI \Rightarrow 27 CPI
- The top and left margins are set to 0.5".



Section 5 Solving Problems

This section helps you to solve any problems that might arise when installing or using your AXIS 370 Cobra interface. There are two major areas of difficulty:

- Missing printouts
- Incorrect printouts

Use the following checklists to pinpoint the possible cause. If your problems should continue, please contact your dealer/distributor.

Missing Printouts

In case of missing printout, check the following:

1. Is the POWER indicator on?

No: Your printer cannot supply the AXIS 370 Cobra. You must use an external power supply (see Section 2).

2. Is the attached printer on-line (*Ready*)?

No: Set the printer on-line (see the printer manual).

3. Is the printer correctly attached?

Make sure that the AXIS 370 Cobra is connected to the proper port. If your printer has both parallel and serial input ports, the printer must be set up for the parallel connection.

4. System printouts: Is the SYSTEM indicator on?

No: The AXIS 370 Cobra is not correctly connected to the system, or the power-up routine has been disturbed. Restart the interface (power-off/power-on). If this doesn't help, make sure that the coax cable is properly connected between the interface and system. If the cable works with another 3270 printer, contact your distributor.

Flashing: The AXIS 370 Cobra is in Test Mode. To exit set the rotary switch to position '9', or switch the AXIS 370 Cobra off and on.



Incorrect Host Printouts

There are five major types of incorrect printouts:

Some Characters are Printed Incorrectly

- **Characters like ä ü Ä Ü are printed as { } []**
Most likely an incorrect System Language has been selected. Select the System Language matching your system configuration, or 'Load Translate table' to make your Control Unit down-load the System Language for you. See "Select System Language" on page 21.
- **Characters like é ì ô ü are printed as e i o u**
Your printer has not been set up for the character set matching the ASCII Character Set selection in the Printer Driver. Make sure that you have selected the correct Printer Driver.

If this doesn't help, your printer may not be able to print all the characters that the system produces. Print out the DBC-to-ASCII translation table (See "Edit Translation Tables" on page 32), and compare this to the table in Appendix B. In some cases it is possible to edit the translation table, or to select another character set in your printer. Consult your distributor for further details.

Corrupted Printouts

This is generally caused by selecting a Printer Driver not matching your printer. The control commands will then be misinterpreted by the printer, causing corrupted printouts. If changing Printer Driver does not help, you can use the ASCII hexdump function (See "Producing Hexdumps" on page 51) to locate the control commands causing the problem.

Incorrect Page Breaks

Most likely an incorrect Form Length setting. Recommended values are listed in Appendix A. Make sure that you have selected the correct Printer Driver.



Lost characters at end of line

Some laser printers cannot print a full line of 80 characters in 10 CPI. Change the Characters per Inch setting to 12 CPI.

Advanced users: You might also modify the 10 CPI string contents to set 10.2 CPI instead.

Additional empty lines or spaces

Your system application may assume the utilization of an IBM RPQ. Several empty lines can be caused by an incorrect logical buffer size. If you are not familiar with IBM RPQ's and buffer sizes, your distributor should be able to help you.



Reporting Problems

If you run into problems that you can't solve on your own, it is important that you make an error report for your System Manager or distributor. The error report should include:

- A printout with a description of the errors
- If possible, a correct printout
- A Parameter List
- A System and ASCII hexdump

If you need technical support, please contact your dealer. If they can't help you, they will forward your request through the appropriate channels.

If you are connected to Internet, have a look at the Axis WWW Home Page at <http://www.axis.se/>. Here you can find information about the company and our products. You can also down-load on-line manuals, tools such as the Acrobat Reader for different platforms, and the latest versions of the software utilities. You can also get files and information through anonymous ftp: log in to [ftp.axis.se](ftp://ftp.axis.se) and go to the /pub/axis directory, or enter **ftp://ftp.axis.se/pub/axis** in your WWW browser.

Printing the Parameter List

The Parameter List shows the complete configuration. A selection of parameters are described in Appendix A. To print the Parameter List, do as follows:

1. **Make sure that your printer is on-line.**
2. **Set the rotary switch to '9', and wait for approx. 3 seconds** until the SYSTEM indicator starts to flash. You are now in the Test Mode.
3. **Set the rotary switch to '8'** to start the printout.
4. **Set the rotary switch to '9' when the printout is completed.** The SYSTEM indicator will stop flashing.
5. **Select position '0'** to resume normal print operation.



Producing Hexdumps

A hexdump is a printout where the input data stream is printed as hexadecimal byte values rather than being interpreted as characters and control codes. The AXIS 370 Cobra features two different types of hexdump modes:

- **System hexdump**
This mode will trap the input data *before* the character and control code conversion. The data is printed as EBCDIC or DBC hexadecimal values.
- **ASCII hexdump**
The input data is converted to ASCII hexadecimal values before printing. This mode is useful if you want to see what printer control command a certain IBM control code corresponds to.

To produce a hexdump, do as follows:

1. **Switch the printer and AXIS 370 Cobra off and on.**
2. **Set the rotary switch to '9', and wait for approx. 3 seconds** until the SYSTEM indicator starts to flash. You are now in the Test Mode.
3. **Select position '4' for system hexdump, or position '3' for ASCII hexdump.**
4. **Repeat your print job.** The data will now be printed in hexadecimal form.
5. **Set the rotary switch to '9' when the printout is completed.** The SYSTEM indicator will stop flashing.
6. **Select position '0' to resume normal print operation.**

Example of ASCII hexdump:

```
AXIS 370 Cobra   Ver 1.00  960103
Printer Driver #49 HP LaserJet III
```

```
0001 1B 26 61 33 36 30 48 1B 26 61 35 32 38 56 1B 26 "-&a360H-&a528V-&"
0002 61 33 36 30 48 1B 26 61 35 32 38 56 54 45 53 54 "a360H-&a528VTEST"
```



Error messages

There are five different error conditions that will cause the AXIS 370 Cobra to print an error message on your printer:

E2-PERMANENT MEMORY CHECKSUM ERROR, FACTORY DEFAULTS SET

This message indicates that the non-volatile memory has been corrupted. The interface is automatically set to factory default state (your configuration is lost). If the message does not re-appear after power-off/power-on, configure the AXIS 370 Cobra (Section 3).

E6-MEMORY OVERFLOW: FREE STRING AREA EXHAUSTED

The available string area is exhausted. You must remove some strings from your configuration. (User Definable Strings, String Substitutions or String parameters in the Parameter List). The size of the available string area is printed in the Parameter List header, and is also displayed in all string programming menus.

BE-BAR CODE ERROR

Incorrect or insufficient bar code definition. The bar code must be specified with five values. See “Bar Codes” on page 44.

BD-SOFTWARE/HARDWARE ERROR

The software cannot run in the current hardware. Contact your dealer.

BF-GDDM SUPPORT NOT ENABLED: NOT ENOUGH ROOM IN FREE STRING AREA; 3352(\$0D18) BYTES REQUIRED

An attempt has been made to enable GDDM (#142) with insufficient free memory. You must remove some strings from your configuration. (User Definable Strings, String Substitutions or String parameters in the Parameter List). The size of the available string area is printed in the Parameter List header, and is also displayed in all string programming menus.



Appendix A The Parameter List

The Parameter List shows the complete configuration of the AXIS 370 Cobra. Each parameter contains a value or string that is used to determine how the AXIS 370 Cobra should behave towards the host and towards the printer.

In this appendix you will find a selection of parameters, i.e. the Basic Configuration, Please refer to the AX-7 Cobra+ Technical Reference Manual for parameters not covered by this manual.

Printout Example

This printout shows the beginning of a Parameter List (the header and the first 10 parameters) for the HP LaserJet III printer driver. Your own printout may differ depending on printer driver selection, firmware revision and customized configuration.

```

AXIS 370 Cobra Ver 1.00 960103

Printer Driver #49 HP LaserJet III
Free String Area: $1A0F

#001 Form Length_____ 66
#002 Line Density_____ 6
#003 Max. Print Pos._____ 132
#004 Char. Density_____ 10
#005 System Language_____ 0: 037 English (US)
#006 True Screen Image_____ No
#007 FF before Hardcopy_____ No
#008 FF after Hardcopy_____ Yes
#009 Monocase_____ No
#010 Suppress Ctrl. Codes_____ No
  
```

If any User Definable Strings or String Substitutions are defined, they will be printed after the Parameter List.



Printer Drivers

A printer driver is a device driver containing all the parameters required to drive a particular range of printers. The following printer drivers are available:

No	Title	No	Title
30	Generic Printer	44	IBM Matrix (PPDS)
31	IBM Graphics	48	HP LaserJet II
32	IBM Proprinter	49	HP LaserJet III
33	Epson FX/EX/DFX	52	Xerox 3700/4045
34	Epson LQ	55	HP LaserJet 4
35	Fujitsu DL (DPL24C)		

Parameter Descriptions

#001

Form Length

Number of lines per page. The AXIS 370 Cobra causes the paper to be ejected (cut sheet) or advanced to the next top of form (fanfold) when the specified number of lines have been printed.

Value	Description	Value	Description
1-255	Number of lines per page	66	A4 size cut sheet
0	Do not count lines	* 66	11" fanfold (<i>default, laser printers</i>)
48	8.5" fanfold	* 72	12" fanfold (<i>default, matrix printers</i>)
64	Letter size cut sheet	-	-

#002

Line Density

Number of lines per inch (LPI).

Value	Description	Value	Description
0	Do not set Line Density	* 6	6 Lines per Inch (<i>default</i>)
3	3 Lines per Inch	8	8 Lines per Inch
4	4 Lines per Inch	-	-



#004

Character Density

Number of characters per inch (CPI).

Value	Description	Value	Description
0	Do not set Char. Density	15	15 Characters per Inch
5	5 Characters per Inch	17	16.7 Characters per Inch
* 10	10 Characters per Inch (default)	99	Proportional Char. spacing
12	12 Characters per Inch	-	-

#005

System Language

This parameter makes the EBCDIC-to-DBC translation table match the System Language configuration of your IBM system.

Value	Description	Value	Description
* 0	037 English (US) (default)	18	297 French
1	037 Netherlands	19	297 French AZERTY
2	037 Portuguese	20	500 International Set 5
3	037 Canadian Bilingual	21	500 New Swiss French
4	260 Canadian French	22	500 Belgian
5	273 Austrian/German	23	290 Japanese Katakana*
6	275 Brazilian	30	420 Arabic*
7	277 Danish/Norwegian	31	424 Hebrew*
8	278 Swedish/Finnish	32	423 Greek*
9	280 Italian	33	1026 Turkey (Latin 5)*
10	281 Japanese English	35	880 Cyrillic*
11	284 Spanish	36	870 East Europe*
12	284 Spanish Speaking	37	875 Greek*
13	285 English (UK)	38	838 Thai*
14	286 Austrian/German alt	80	- - - XBASIC (Arabic)*
15	287 Danish/Norwegian alt	81	- - - XCOM2 (Arabic)*
16	288 Swedish/Finnish alt	99	- - - Load Translate Table
17	289 Spanish alt		

Note: ☐ To use system languages marked with *, the matching *ASCII Character set (#063)* must be selected.



#040

Extended Emulation Mode

Selects the default Extended Emulation Mode.

Value	Description	Value	Description
* 0	No Extended Emulation Mode (default)	3	MPI compatible mode
1	Escape Character translates to ASCII \$1B	4	Memorex 2068 compatible mode
2	Standard Extended Emulation Mode	5	Maersk Data compatible mode

#041

Escape Character

Select the DBC character code used for Single-byte Transparency, User Definable Strings and Extended Emulation Mode 1.

Value	Description	Value	Description
\$10-\$BF	(valid range)	*\$2E	'%' (default)



#042

Option Select 1

This parameter controls 8 independent switches. Each bit represents one switch.

Value	Description	Value	Description
\$00-\$FF	(valid range)	*\$02	(default)

Bit 1 (\$02): LU1 Form Feed valid in 1st line.

Value	Description	Value	Description
0	No	*1	Yes (<i>default</i>)

Bit 3 (\$08): SHF Maximum Print Position select.

Value	Description	Value	Description
*0	Default MPP is used (<i>default</i>)	1	Current MPP is used

Bit 5 (\$20): SVF Maximum Page Length select.

Value	Description	Value	Description
0	Default MPL is used (<i>default</i>)	*1	Current MPL is used

Bit 6 (\$40): Extended SCS Transparency.

Value	Description	Value	Description
*0	SCS TRN data as SCS codes (<i>default</i>)	1	SCS TRN data as ASCII codes

Bit 7 (\$80): Action at coax communication loss.

Value	Description	Value	Description
*0	No action (<i>default</i>)	1	Restart attempt after 60 seconds

#045

IBM Printer Emulation

Selects the IBM Printer Emulation.

Value	Description	Value	Description
*87	IBM 3287 (<i>default</i>)	62	IBM 3262
68	IBM 3268	24	IBM 4224 (non-IPDS)
14	IBM 4214	30	IBM 4230



#063

ASCII Character Set

Selects the DBC to ASCII translation table.

Value	Description	
0	US English	(7-bit symbol set)
1	Swedish/Finnish	(7-bit symbol set)
2	Danish/Norwegian	(7-bit symbol set)
3	German	(7-bit symbol set)
4	UK English	(7-bit symbol set)
5	Italian	(7-bit symbol set)
6	French/Belgian	(7-bit symbol set)
7	Spanish	(7-bit symbol set)
8	Japanese	(7-bit symbol set)
9	XBASIC (Arabic)	(8-bit symbol set)
10	XCOM2 (Arabic)	(8-bit symbol set)
11	PC Set 2	(8-bit symbol set)
12	Roman-8	(8-bit symbol set)
13	PC-850	(8-bit symbol set)
14	ISO/ECMA94	(8-bit symbol set)
15	PC-942 Shift JIS	(8/16-bit symbol set)
16	JIS X0201	(8-bit symbol set)
20	PC-864 Arabic	(8-bit symbol set)
21	PC-862 Hebrew	(8-bit symbol set)
22	PC-869 Greek	(8-bit symbol set)
23	PC-857 Turkish	(8-bit symbol set)
25	PC-855 Cyrillic	(8-bit symbol set)
26	PC-852 PC Latin 2	(8-bit symbol set)
27	PC-851 Greek	(8-bit symbol set)
28	PC-874 Thai	(8-bit symbol set)

Note: ☐ The default setting depends on the selected printer driver.



#066

Option Select 2

This parameter controls 8 independent switches. Each bit represents one switch.

Value	Description	Value	Description
\$00-\$FF	(valid range)	*\$10	(default)

Bit 0 (\$01): Extended Emulation Control Syntax.

Value	Description	Value	Description
*0	Normal syntax (<i>default</i>)	1	Only Escape Character after '&&??'

Bit 1 (\$02): True Screen Image in Host Direct Mode.

Value	Description	Value	Description
*0	True Screen Image valid for all Hardcopy modes (<i>default</i>)	1	Suppress NULs in Host Direct Mode

Bit 2 (\$04): Next print position after New Line at MPP+1.

Value	Description	Value	Description
*0	1st print position of current + 2 lines (<i>default</i>)	1	1st print position of current + 1 line

Bit 3 (\$08): Lock MPP.

Value	Description	Value	Description
*0	No (<i>default</i>)	1	Yes

Bit 4 (\$10): Suppress New Line after Extended Emulation Sequence.

Value	Description	Value	Description
0	Yes	*1	No (<i>default</i>)

Bit 5 (\$20): CR and Space Character Buffering.

Value	Description	Value	Description
*0	Yes (<i>default</i>)	1	No

#070

Transparency Lead-In Sequence

Starts Multi-byte Transparency Mode.

Value	Description	Value	Description
<any seq.>	(any length or content)	*\$2E \$2E	'%%' (<i>default</i>)



#071

Configuration Lead-In Sequence

Starts Configuration Mode.

Value	Description	Value	Description
<any seq.>	(any length or content)	*\$2E \$AF	'%P' (default)

#072

Transparency/Configuration Trailer Sequence

Terminates the Multi-byte and Configuration Modes.

Value	Description	Value	Description
<any seq.>	(any length or content)	*\$2E	'%' (default)

#074

Automatic Orientation

Controls the automatic page orientation function, the following values can be selected:

Value	Description	Value	Description
*0	Off (default)	3	A4 (8.27" x 11.69"/ 297 mm x 210 mm)
1	Letter (8.5" x 11")	4	Executive (7.25" x 10.5")
2	Legal (8.5" x 14")	99	Custom.Auto orientation ena- bled for Custom size paper.

#075

Custom Page Size

User definable paper size implemented by selecting '99' in #074. The size is entered in $1/300$ " as a 4-byte hexadecimal sequence: width x length.

#093

Bar Code Driver

Selects the graphics driver used for bar code printing. The default value depends on the selected Printer Driver.

Value	Description	Value	Description
0	Off	2	Epson LQ/Fujitsu DPL 24C
1	IBM Proprinter/Epson FX	8	HP-PCL



#094

Bar Code Attributes

Adjust bar code printout quality to paper and printer conditions.

Value	Description	Value	Description
*0	Normal (<i>default</i>)	2	Bold
1	Thin	3	Thin and Bold

#100

Option Select 3

This parameter controls 8 independent switches. Each bit represents one switch.

Value	Description	Value	Description
\$00-\$FF	(valid range)	*\$02	(default)

Bit 0 (\$01): Next print position after LU3 Form Feed within Print Buffer.

Value	Description	Value	Description
*0	2nd print position of next form (<i>default</i>)	1	1st print position of next form

Bit 1 (\$02): Form Feed at LU3 to LU1 change.

Value	Description	Value	Description
0	Yes	*1	No (<i>default</i>)

Bit 2 (\$04): Valid LU3 Form Feed positions.

Value	Description	Value	Description
*0	1st print position and MPP+1 (<i>default</i>)	1	Any position

Bit 3 (\$08): Automatic function at End of Job.

Value	Description	Value	Description
*0	New line (<i>default</i>)	1	Form Feed

Bit 7 (\$80): Space as delimiter in Extended Emulation Mode.

Value	Description	Value	Description
*0	Not valid (<i>default</i>)	1	Valid



#124

Extended Attribute Buffer (EAB)

Controls the EAB and APL text emulation. The default value depends on the selected Printer Driver.

Value	Description	Value	Description
0	EAB and APL disabled	2	Use EAB, APL characters are emulated by PC Set 2 Characters
1	Use EAB, print APL characters as normal characters	-	-

#139

End of Job Time-out

A timer controlling parameters #140 and #151 when the host has been idle for the specified amount of time.

Value	Description	Value	Description
1-255	Time-out in seconds	60	Take action after 1 min. idle
*0	Do not take action on idle (default)	255	Take action after 4:15 min. idle
10	Take action after 10 sec. idle	-	-

#140

End of Job Sequence

This string is sent when the End of Job timeout has expired.

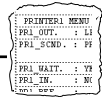
Value	Description	Value	Description
<any seq.>	(any length or content)	*<empty>	(default)

#142

GDDM Support

Selects the graphics driver used for GDDM (Programmable Symbols) graphics.

Value	Description	Value	Description
*0	Off (default)	3	HP LaserJet
1	Fujitsu DPL24C	4	HP LaserJet 2/3 size
2	Epson/Proprinter	-	-



#143

GDDM Color

Selects Color/Monochrome GDDM graphics.

Value	Description	Value	Description
*0	Monochrome (default)	2	Seven colors
1	Four colors		

#148

Orientation

Controls the page orientation when automatic orientation is disabled, or when the calculated page size does not fit within the physical page size.

Value	Description	Value	Description
*0	Portrait (default)	2	COR
1	Landscape		

#151

Start of Job Sequence

This string precedes the first host buffer arriving after an End of Job timeout.

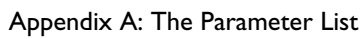
Value	Description	Value	Description
<any seq.>	(any length or content)	*<empty>	(default)

#157

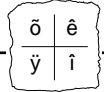
Disconnect if Power off

Controls if the AXIS 370 Cobra should disconnect if the printer is turned off. Only valid if an external power supply is used. This function may not work with some printers

Value	Description	Value	Description
*No	Keep host connected (default)	Yes	Disconnect if printer is off



64



Appendix B DBC Character Table

This table (DBC - Device Buffer Code) shows the internal character representation in the AXIS 370 Cobra.

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Nul	SP	0	&	à	ä	À	Ä	a	q	A	Q		ð		Ð
1	EM	=	1	-	è	ë	È	Ë	b	r	B	R		þ		Þ
2	FF	'	2	.	ì	ï	Ì	Ï	c	s	C	S		ý		Ý
3	NL	"	3	,	ò	ö	Ò	Ö	d	t	D	T				
4	-	/	4	:	ù	ü	Ù	Ü	e	u	E	U				
5	CR	\	5	+	ã	â	Ã	Â	f	v	F	V	¹	±		
6	-	|	6	¬	õ	ê	Õ	Ê	g	w	G	W	²	÷		
7	-	|	7	¬	ÿ	î	Y	Î	h	x	H	X	³	×		
8	>	?	8	°	à	ô	A	Ô	i	y	I	Y	^{1/2}	•		
9	<	!	9	√	è	û	E	Û	j	z	J	Z	^{1/4}	«		
A	[	\$	ß	^	é	á	E	Á	k	æ	K	Æ	^{3/4}	»		
B	]	¢	§	~	ì	é	I	É	l	ø	L	Ø	⁹	¿		
C	)	£	#	¨	ò	í	O	Í	m	â	M	Â	^a	¡		
D	(	¥	@	`	ù	ó	U	Ó	n	ç	N	Ç	¶	µ		
E	}	Pt	%	'	ü	ú	Y	Ú	o	¬	O	;	©			
F	{	¤	-	¸	ç	ñ	C	Ñ	p	*	P	*	®			

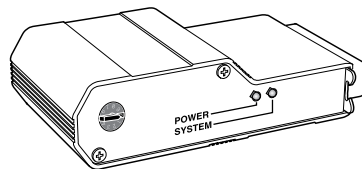
Read each DBC code as a column and row position. For example DBC code \$80 represents the character 'a'.



Appendix C The Front Panel

The front panel has two indicators (POWER and SYSTEM) and a rotary switch. The switch is used for accessing certain functions. In normal print operation it should be set to '0'.

The POWER indicator



This indicator (green) is lit when the AXIS 370 Cobra is switched on.

The SYSTEM indicator

This indicator (green) is lit when the AXIS 370 Cobra is connected to your IBM system. It can also flash under the following conditions:

Flash during a few seconds at power up.

Flash in Test Mode (see below).

Rapid flash during test function execution and during flash loading of new software

Note: ☐ If the power up flashing continues, a hardware error has occurred. Contact your dealer/ distributor.

The Rotary Switch

The ten-position rotary switch is used to set start conditions for the AXIS 370 Cobra. It is also used to select and execute test functions during operation.



Start Conditions

The action when the AXIS 370 Cobra is switched on will be determined by the setting of the rotary switch, as follows:

Pos.	Description
0	Normal print operation.*
1-7	Reserved.
8-9	Perform a test printout, then start normal print operation.

* If a terminal is connected the terminal set-up routine is started automatically, see Section 3.

Test Mode

Test Mode is reached from normal print operation. It is used to access a number of internal functions. Normal print operation is inhibited.

Set the rotary switch to position '9'. When the SYSTEM indicator starts to flash, you can select one of the following Test Mode functions:

Pos.	Test Mode Function
0	Restart - same as power off/power on.
1	Set Factory Defaults - abandon the current configuration. See note.
2	Print Character Translation Table - see Appendix B.
3	ASCII Hex Dump Mode - trap the outgoing data stream and print characters and control commands as hexadecimal values.
4	System Hex Dump Mode - trap the incoming data stream and print characters and control codes as hexadecimal values.
5, 6	Reserved
7	Terminal Set-Up Mode - run the Configuration Utility using a directly attached 3270 terminal, see Section 3.
8	Print Parameter List - print the complete configuration, see Appendix A.
9	Exit Test Mode - resume normal print operation.

Do not forget to set the rotary switch to '0' again for normal print operation.

Note: ☐ To set factory default configuration requires a two-step operation to avoid accidental activation and loss of configuration settings:

1. **Set the rotary switch to position '1'**
2. **Within 2 seconds, set the rotary switch to position '2'**



Appendix D Updating the Software

Software that can be Updated

- The AXIS 370 Cobra software held in *Flash ROM*

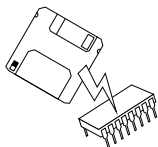
All software updates are free of charge.

Checking if an update is available

Contact your dealer to check if there has been any new issues of the software. You should have your present version numbers ready to compare against the latest software issues from Axis.

Alternatively you may wish to check the Axis WWW Home Page at <http://www.axis.se/>, where you can down-load the latest versions of the software utilities. You can also get files and information through anonymous ftp: log in to **ftp.axis.se** and go to the /pub/axis directory.

Updating the AXIS 370 Cobra Flash ROM



You can carry out an update to your Flash ROM:

- through the parallel printer port of the AXIS 370 Cobra.

Full instructions on how to carry out the update will be supplied with the software update.

Flash ROM This is a special type of memory chip in the AXIS 370 Cobra that controls the printing operations. Just like a normal ROM its contents are unaffected when the power is turned off. What makes it special is that its memory contents can be replaced during an update sequence; this will upgrade your AXIS 370 Cobra's performance without having to replace any physical components.

Appendix E Technical Specification

Host Environments

- IBM S/370, S/390
- IBM 303x, 308x, 309x
- IBM 81xx
- IBM 47xx
- IBM 43xx
- IBM 937x
- IBM 3174
- IBM 3274 type A
- IBM 3276
- IBM 8775 Display Terminal
- IBM 4701/4702 Device Cluster
- IBM 4300 Printer Adapter
- IBM 9370 Subsystem Control Unit
- IBM 3299 Multiplexor
- Equivalent PCM Control Units
- IBM 3287 mod. 1 and 2C
- IBM 3268 mod. 1 and 2
- IBM 4214 mod. 1
- IBM 3262 mod. 3 and 13
- IBM 4224 mod. 2 (non-IPDS mode)
- IBM 4230 mod. 201

IBM System Features

- SNA SCS (LU1), SNA DSE (LU3) and BSC 3270/DSC data streams
- APL2/Text Feature
- LU1 FM Headers Subset 1
- SCS Local/Remote Save/Restore Formats
- Extended Attribute Buffer (EAB)
- 3270/DSC/DSE Query Reply and LU1 Query List
- IBM RPQs
- Load Translate Table
- Country Extended Code Pages (CECP)
- IBM 3287 mod. 2C Programmable Symbols (PS) and color
- Page Presentation Media
- Cut Sheet Feeder Command

Axis 370 Cobra Additional Features

- Configuration from a Terminal or from the System
- 12 predefined Printer Drivers, fully editable
- Fully editable Character Translation Tables
- 255 User Definable Strings
- 127 String Substitutions
- Programmable Transparency Function (data pass-through)
- Bar Codes
- Start/End of Job Strings
- Automatic Page Orientation and COR
- FLASH memory

Hardware Specifications

Size: 29x55x100 mm / 1.2"x2.2"x4.0"

Weight: 0.15 kg/ 0.3 lb

Power: 5 VDC, min 170 mA from printer parallel port or AXIS
Power Supply PS-A, 9 VAC, min 300mA.

Approvals

EMC: CE: EN 55022/1987, EN 50082-1/1992. FCC Class A,
Safety: EN 60950, UL, CSA

Environments

Temp.: 5-40°C/ 40-105°F

Humidity: 20-80% non-condensing

All specifications are subject to change without prior notice.



Appendix F Related Documentation

Title	Part Number
AX-7 Cobra+ Technical Reference	I2937
IBM 3274 Control Unit Customizing Guide	GA23-0065-6
IBM 3174 Subsystem Control Unit Customizing Guide	GA23-0214-1
IBM 3174 Character Set Reference	GA27-3831-04
IBM 3287 Printer Models 1C and 2C Components Description	GA27-3229-2
IBM 3268 Printer Models 2 and 2C Description	GA27-3268-2
IBM 4214 Printer Model 1 Product Description	GC31-2563-1
IBM 3262 Printer Models 3 and 13 Components Description	GA24-3741-1
IBM 4224 Printer Models 1xx and 2xx Product and Programming Description Manual	GC31-2551-4



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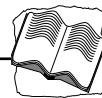
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